Technical Issues Committee
Meeting Notes
14 August 2007

Attendees:
Al Vargas, California Department of Food and Agriculture
Anna Hibbert, Modesto Irrigation District
Bill Thomas, South San Joaquin Water Quality Coalition
Bryan Bonea, Sutter County RCD
Chad Dibble, Central Valley Water Board
Chris Beegan, State Water Board
Claus Suverkropp, Larry Walker and Associates
Cynthia Lashruck, EMRCD Merced Planning Commission
Dan Odenweller, Central Valley Water Board
Dania Huggins, Central Valley Water Board
Eric Athorp, SSVWQC
G. Fred Lee, G. Fred Lee & Associates
Jim Atherstone, South San Joaquin Irrigation District
Joe McGahan, Westside Coalition
Joel Miller, Environmental Consulting
John Meek, San Joaquin County & Delta Water Quality Coalition
John Swanson, Central Valley Water Board
Johnny Gonzales, State Water Resources Control Board
Keith Larson, Turlock Irrigation District
Ken Landau, Central Valley Water Board
Larry Lloyd, SCRCD
Lenwood Hall, University of Maryland
Lloyd Fryer, KCWA
Margie Lopez Read, Central Valley Water Board
Marshall Lee, California Department of Pesticide Regulation
Melanee Emanuel, State Water Resource Control Board
Mike Johnson, University of California at Davis
Mike Niemi, Modesto Irrigation District
Nasser Dean, WPHA
Paul Han, Central Valley Water Board
Petra Lee, Central Valley Water Board
Rick Hoelzel, Kings River Conservation District
Roberta Firoved, California Rice Commission (CRC)
Rod Schuler, Retired, Public Works
Stephen Clark, Pacific EcoRisk
Susan Fregien, Central Valley Water Board
Tina Lunt, Sacramento Valley Water Quality Coalition
Tom Stephens, Merced Irrigation District

By phone:
Karl Longley, Central Valley Water Board

Meeting Summary

I. Introductions and Announcements

The primary purpose of this meeting was to continue to develop tools, define criteria, and provide clarification for revision of the working draft Coalition MRP. The goals were to: 1) agree on guidance principles for management questions 2, 3 & 4; 2) identify a short list of appropriate approaches for assessment monitoring design; and 3) provide the Triggers Focus Group with the information needed to complete revisions to the guidance for Questions 2, 3 & 4 and further develop design options for assessment monitoring.

Margie Read talked about legacy pesticides and developing a process for addressing water quality exceedances of these pesticides. Margie indicated that if there is an interest among stakeholders, a subgroup could be formed to discuss these issues. Dr. Fred Lee stated that he developed a summary report on legacy pesticides (G. Fred Lee, 2001. Developing TMDLs for Control of Excessive Bioaccumulation of Organochlorine Pesticides and PCBs, Volume 4. Number 2. March 8, 2001. http://www.gfredlee.com/news/swnews42). Also, Dr. Lee is analyzing data (in a collaborative effort) that Dr. Chris Foe has collected through a UC Davis contract to "Analyze and Report Results of Group A Pesticides and PCB Tissue Levels in Central Valley Fish." This report will be available in December 2007. A question was raised regarding the value of discussing these issues because legacy pesticides are no longer used in agriculture. Dan Odenweller stated that it would be useful to verify the assumption that these pesticides are no longer used and to be able to say, "For the following reasons we have determined that these are legacy pesticides that are no longer used," and not have to depend any longer on assumptions to this effect. It was suggested at the meeting that Regional Board staff could incorporate some of the results from this contract as a starting point for these discussions.

Dr. Brock Bernstein led discussions with meeting participants. Some of the documents provided during the meeting reflect some of the comments received during the Focus Trigger Group and staff meetings. Thus, the goal of these documents was to capture and focus some of the Coalition Group MRP management questions, while also maintaining a consistent, systematic monitoring approach among coalitions. This meeting focused on principles of source identification, management questions 2, 3 & 4, and approaches for assessment monitoring design.

II. Management Questions and Approaches for Source Identification

The discussion of this item began with the analysis of Draft Figure 1, "Flow Diagram of Monitoring and Evaluation Steps Focused Primarily on Source Identification" (Figure 1, end of document). It was suggested that a set of guidance procedures could go into a separate document; thus, this document could be easily updated without requiring Executive Officer approval.

A couple of questions were raised with regards to who is responsible for these decisions (questions enclosed in the flow diagram, Figure 1) and also who is involved in the collaborative process (first orange rectangular box, Figure 1). Dr. Bernstein indicated that the collaborative process would be prompted in situations where agricultural sources were not significant contributors (less than about 5 – 10% of loads). In such cases, other potential sources, such as municipalities, would be approached by the Regional Board to participate in studies to better identify sources.

Another concern was that there might be some sources that might not be agricultural. Thus, the question was raised on how or what is the process that Regional Board staff is using to deal with these sources? The participant followed up his question with a specific sample of Lone Tree Creek and results found for *E.coli* and nutrients that might be related to the substantial number of dairies located in the area. Ken Landau explained that there is not a formal process in place because every case is different. Often when Regional Board staff observes results that are not attributable to a particular discharger, the different parties are brought to the table to discuss and resolve the issue. Thus, when the ILP finds that a problem source might not be related to agriculture, it is the responsibility of the Regional Board to determine what program needs to deal with the finding. In most cases, there will be a regulatory program that covers the non-ILP source(s).

Ken Landau stated that this sort of collaborative approach to source identification and problem solving is not new. For example, POTWs have found in several instances that their discharges are not the major source of problems and other parties have been brought in on a case by case basis to participate in the studies needed to address the problem. Such efforts can be organized by the Board and the Board will at times spend its own money if there is no regulatory handle available.

III. Draft Guidance: Management Questions 2 & 3

Question 2, “What is the magnitude and the extent of water quality problems?” In general, members thought that the document was well done and represents some of the concerns and potential approaches to address some of these issues. However, it was suggested by a member that spatial / geographic scale is important and that it might be important for coalitions to have an understanding of where they need to end up. For example, there might a different evaluation and assessment when you start analyzing the problem at a particular site, stream, river, watershed, or at a coalition scale. Dr. Bernstein agreed that it would be important to define the population that’s being focused on. In response to a question, Margie Read emphasized that the prioritization of problems and studies of magnitude and extent would all be done on a coalition-by-coalition basis. Thus, a coalition with minor problems compared to another would still be required to follow through with

prioritization and source identification efforts. This means that the primary spatial scale for the management questions is the coalition scale.

At a more general level, Johnny Gonzales at several points in the meeting stressed the importance of including criteria or guidelines to ensure that data analyses and reports were of sufficient quality to actually provide a basis for addressing problems and questions. Dr. Bernstein responded that this was a central feature of the TIC's work to revise the MRP and develop more detailed monitoring guidance. This will necessarily involve collaboration between coalition members and Regional Board staff.

TIC members raised the issue of how the prioritization (of problems) step would work given that management plans must still be developed if exceedances are over a certain threshold. After some discussion, it was agreed that, while management plans must be produced even for lower priority problems, the lower priority could be reflected in a longer timeframe, less rigorous or extensive follow-up studies, or less intensive BMPs.

The topic of source identification is the key to addressing management question No. 3. Dr. Bernstein noted that the approach to address source identification might depend on what you already know. For example, there may be certain chemicals that are specific to a particular crop or season; the coalition may not need to conduct follow-up sampling if it can establish the case that the areas of potential chemical application are known.

It was suggested that management plans be added to the flowchart as an explicit step, but another TIC member pointed out that, except for the first box, which represents the assessment results, the entire flowchart essentially reflects all the steps that would be included in a management plan.

After giving the members a few minutes to read through the document, Dr. Bernstein asked whether the draft guidance captures all of the categories of constituents that could be targets of source identification studies.

Some of the members agreed that the draft guidance summary was well done because it captures most of the coalitions' concerns in how to deal with the major categories of analytes. However, additional emphasis should be placed on the importance of cultural practices, such as how pesticides are applied, factors contributing to aerial drift, other dust fallout. An additional concern was raised regarding the number of studies that a coalition might have to perform when an analyte has exceeded a target limit twice. Currently, it depends on the question "are the targets being met?" (First blue diamond, Figure 1). Another member responded to this question by suggesting that the collaborative effort could be split into two categories once the assessment has been made:

(1) Determine the problem, based on an appropriate assessment.

(2) Determine the approach.

For step two, once the cause of the problem has been defined as an agricultural source, determine what approach will be used to resolve the problem. This could be done through studies, technical expertise, and collaborative efforts with the Regional Board.

TIC members provided examples of situations in which the sources of constituents could be difficult to identify or could be coming from a non-ILP source. For example, dairies in some areas grow alfalfa and corn and their discharges look similar to some agricultural discharges. Regional Board staff responded that there are regulatory programs that could be used to deal with dairies and that this might be an instance where collaborative studies would be called for. In another example involving algae toxicity, upstream source tracking studies showed that the toxicity stemmed from the source water in a reservoir and was probably due to natural sources. Dr. Bernstein responded that this was exactly how the source identification studies were intended to work. Each instance will be somewhat different and there is no substitute for doing the necessary homework and using all available information.

How will the Regional Board determine who is responsible for what? For example in Zone 2, one monitoring site has a persistent problem with legacy pesticides. How will the Regional Board staff approach this situation because it might be more of a “point source” problem, especially when all of the exceedances are occurring at one particular site? Dr. Bernstein indicated that Management Question 3: “What are the contributing sources from agriculture?” deals with different categories of sources from agriculture (Source ID monitoring design guidance 08-12-07 document). Dr. Bernstein also recommended to the TIC members to select a particular analyte and see if the different items in the specific categories do apply. Margie Read suggested that a toxicity category would need to be added to this list.

In response to a question about whether studies would have to be performed for all categories of pollutant, even if some were not a problem, it was pointed out that the categories of sources and related source identification studies were presented as a menu and coalitions could select only those categories that were relevant to their situation.

Ken Landau suggested that on the question of “are agricultural sources significant?” (Page 3 of Source ID monitoring design guidance 08-12-07 document) it is important to be cautious with assigning numbers to agricultural contribution “is near the 5 – 10% threshold” (page 4 of Source ID monitoring design guidance 08-12-07 document). There is a danger of inadvertently establishing a regulatory threshold and the 5 – 10% threshold mentioned in the draft guidance should be carefully described as a rule of thumb that could vary depending on the circumstance. For example, even if agriculture were a small (less than 5%) contribution to a problem, they might still be expected to address it if the source

was correctable. In addition, it may require a significant effort to establish the relative size of the agricultural source contribution and we don't want to be tightly tied to a specific number, or to a rigorous process to determine how much belongs to which source. Thus, this language will need to be modified before it could be incorporated into the MRP or any guidance document. A question was raised by Board member Dan Odenweller: if 10% of the source of the problem is determine to be from an agricultural source, does Regional Board envision coalitions doing more than 10% to address the problem in order to provide the basis for a trading program Ken Landau responded that coalitions are doing so for methyl mercury and that a trading program would not be impossible. However, any trading program would be a long way down the road.

There was some discussion of the fact that data on pesticide use patterns are not always readily or quickly available, depending on the type of pesticide used. Thus, management plans should recognize the time lags that will sometimes be involved in acquiring data needed for source identification studies. Marshall Lee also pointed out that there are not many data points to work with in terms of identifying the sources of pesticides. In general, we are limited to the use reports and monitoring data, which are not necessarily designed to identify sources. He mentioned that there is only one study he is aware of that did a thorough job of identifying sources. Sampling was conducted daily for a year at fixed sites, which was an expensive effort. If expensive and intensive studies like this are not done, then greater emphasis will have to be placed on best professional judgment. Dr. Bernstein reminded the group of Board staff's comments at the previous TIC meeting that they recognize this will be a long-term process and that they are looking for good-faith efforts to implement effective BMPs and to make continued improvements. It was noted that the question "Are agricultural sources significant?" may not be simply or quickly answered. If a pesticide is identified it could be a year before you can obtain PURs (page 4, first bullet) or other data. Thus, it is important that Regional Board staff understand that there is an important lag component in clarifying the exact sources.

A question was raised regarding the reference to pyrethroids in the discussion of evaluating sediment toxicity. Dr. Bernstein indicated that pyrethroids were mentioned as an example of a particle-bound toxicant and that there was no intent to draw conclusions about pyrethroids.

Under the section, "Broadly distributed, non-pesticide, particle-bound constituents such as metals," some of the members seemed confused with the use of words "desktop audit" (Page 6, second bullet, first sentence). Dr. Bernstein explained that this is descriptive of a quick analysis, using readily available data and sometimes termed a "back of the envelope calculation." The focus of such an audit could be to develop a first-cut or crude mass balance. Under "Legacy pesticides" the use of the term "mass balance modeling" (Page 6, fourth bullet) seemed to raise some concerns among some of the members. Since mass balance modeling could be a very complicated task it was suggested that this might not be the best

appropriate term to use. Dr. Bernstein clarified that the intended meaning of the term “mass balance modeling” was in terms of a conceptual model or estimates using available information, and to encourage coalitions to do some critical thinking about where things come from and where they go. The intent of this term was not to suggest the need for formal mathematical modeling.

Dan Odenweller suggested that the word “assume” on p. 6 in reference to the use of legacy pesticides be replaced with “postulated that” which would then lay the groundwork for the scientific studies that Margie Read referred to at the beginning of the meeting.

Any emphasis on sediment toxicity should recognize the potential importance of in-place bed sediments, in contrast to sediments imported, mobilized, and/or transported by agricultural practices.

Dissolved metals should be measured at the same time as total metals. The dissolved fraction is the appropriate one to use to determine exceedances and is also the focus of toxicity concern. Total metals are useful for estimating loads and potential downstream effects.

It was suggested that for source identification, a combination of resources would have to be used such as:

- Best professional judgment
- PURs
- Agricultural commissioners
- Pesticides Advisors
- Other sources

Dr. Bernstein suggested to the TIC members to spend some time analyzing Table 1 through 3 of the “Source ID monitoring design guidance 08-12-07” document and determine if these might be useful in the MRP process as well. TIC members agreed that it would be best to separate water column and sediment assessments, since water and sediment are not tightly linked in terms of chemistry and toxicity. Thus, benthic community data should not be compared to or combined with aquatic toxicity. Sediment toxicity should be added to the table. Another suggestion from Board member Dan Odenweller was to eliminate the language about “test organisms not sensitive to problem pollutants” because it is not the intent of the MRP to identify what test organisms need to be measured (Page 10, Table 1, item 3).

Lenwood Hall recommended incorporating in the draft MRP the requirement for bioassessment of the current MRP:

> Bioassessment monitoring protocols are at the developing phase and there are no Basin Plan requirements or standards addressing the results of bioassessment monitoring. Coalition Groups are

> encouraged to conduct bioassessment to collect data that may be used as reference sites and provide information for scientific and policy decision making in the future. Bioassessment may serve monitoring needs through three primary functions: 1) screening or initial assessment of conditions; 2) characterization of impairment and diagnosis; and 3) trend monitoring to evaluate improvements through the implementation of management practices. Bioassessment data from all wadeable impaired waterbodies may serve as an excellent benchmark for measuring both current biological conditions and success of management practices (Order NO.2005-0833, page 9)

Margie Read responded that the above paragraph would be included in the draft MRP.

Dr. Bernstein clarified that in Figure 1 he is describing two levels of BMP evaluation: (1) Does it work? and (2) Does it improve water quality?

IV. Management Questions 4 & 5

Dr. Bernstein began a discussion of issues related to management questions 4 and 5, since this will be a topic discussed at the next Triggers Focus Group phone conference.

TIC members made a number of suggestions related to guidance for question 4. The multiple use aspects of some BMPs should be acknowledged and included in their description and in decisions about which BMPs to implement where/when. For example, tail water return helps to both control sediment and increase the available water supply. It is also important to emphasize education and outreach. Another important point is that there are not necessarily well-developed BMPs that can be implemented off-the-shelf. In many cases, it takes time to develop and validate BMPs. This serves to highlight the importance of cultural practices, as opposed to strictly structural BMPs. In many cases, practices related to the design of water systems and sediment control can be the most effective approaches, for example, having the return flow go back to the source water.

There were no comments related specifically to question 5.

V. Approaches for Assessment Monitoring Design

Dr. Bernstein introduced this document by describing a few approaches that are presented. The coalitions may choose another more appropriate approach for a given area. It was suggested that the following paragraph should be incorporated into the draft MRP:

> The following are intended to provide several starting points for discussion about useful and appropriate design guidance for the assessment monitoring component of the MRP (Management Question 1). This guidance is intended to help organize monitoring design efforts so that the resulting designs are technically sound and cost effective, make maximum use of existing knowledge, and balance desired consistency across programs with the flexibility needed to adapt to local circumstances.

TIC members requested that the discussion of monitoring frequency in the draft guidance be inserted into the MRP so that the MRP is internally consistent to make it clear that coalition monitoring designs are not strictly bound by the existing language on monthly sampling. As for the other aspects of coalition monitoring designs, there is flexibility in terms of sampling frequency as long as the rationale is clearly spelled out.

There was a brief discussion of existing collaborative monitoring efforts. These are supported by Board staff and can provide benefits to the coalitions.

In the “Monitoring Approaches” section, there was a comment on the “Hypothesis-testing designs” (page 3) that the currently proposed (Draft MRP) monitoring sampling of “downstream once a month design” cannot fulfill the requirements of the MRP. It was suggested that sampling designs should be focused on upstream “edge of field” monitoring, which will be closer to the sources. “Edge of Field” monitoring is highly focused and is more likely to detect problems and help to then determine the source of the problem. In this way, BMPs can be more easily and effectively evaluated. It was indicated that, in addition to the economic constraints that this extensive monitoring represents, there would be some access limitations (private property issues brought up by Dr. Karl Longley). Dr. Bernstein noted that this design was presented as an option that could be considered by the coalitions depending on their specific circumstances. In addition, it was noted that the alternative assessment designs described in the guidance are not necessarily mutually exclusive. Hybrid designs are possible as well as moving from one sort of design to another over time depending on monitoring findings.

One TIC member raised the issue of how monitoring plans will be judged to be adequate. There is room for legitimate disagreement, even among experts, about numbers of monitoring sites, sampling frequency, and so on. Even if performance standards are defined, there can be legitimate disagreement about the nature of the standards. Johnny Gonzales noted that similar issues had come up during the development of MS4 monitoring plans and had been resolved through collaborative discussions with stakeholders who had extensive knowledge of the area. Margie Read agreed that the question of “when is enough enough” keeps coming up and that they haven’t yet succeeded in finding a way to define this clearly. Board staff want to avoid being overly prescriptive on the one hand and

also want to avoid the risk on the other hand of allowing bad monitoring designs to be implemented. Dr. Bernstein stated that one goal of the guidance is to help ensure that the coalitions follow accepted study design principles when they develop their designs. Mike Johnson encouraged everyone to view this as a long-term process of program development and evolution; all these issues will not be resolved overnight or even in two or three years.

A concern about the time needed for implementation of these designs was brought up, given the amount of time that Regional Board staff might take to review these MRP Plans (6 to 12 months was the range given as an example by a TIC member). Dr. Longley will meet with Margie and the Regional Board Executive Officer to discuss the timelines for review of MRP Plans.

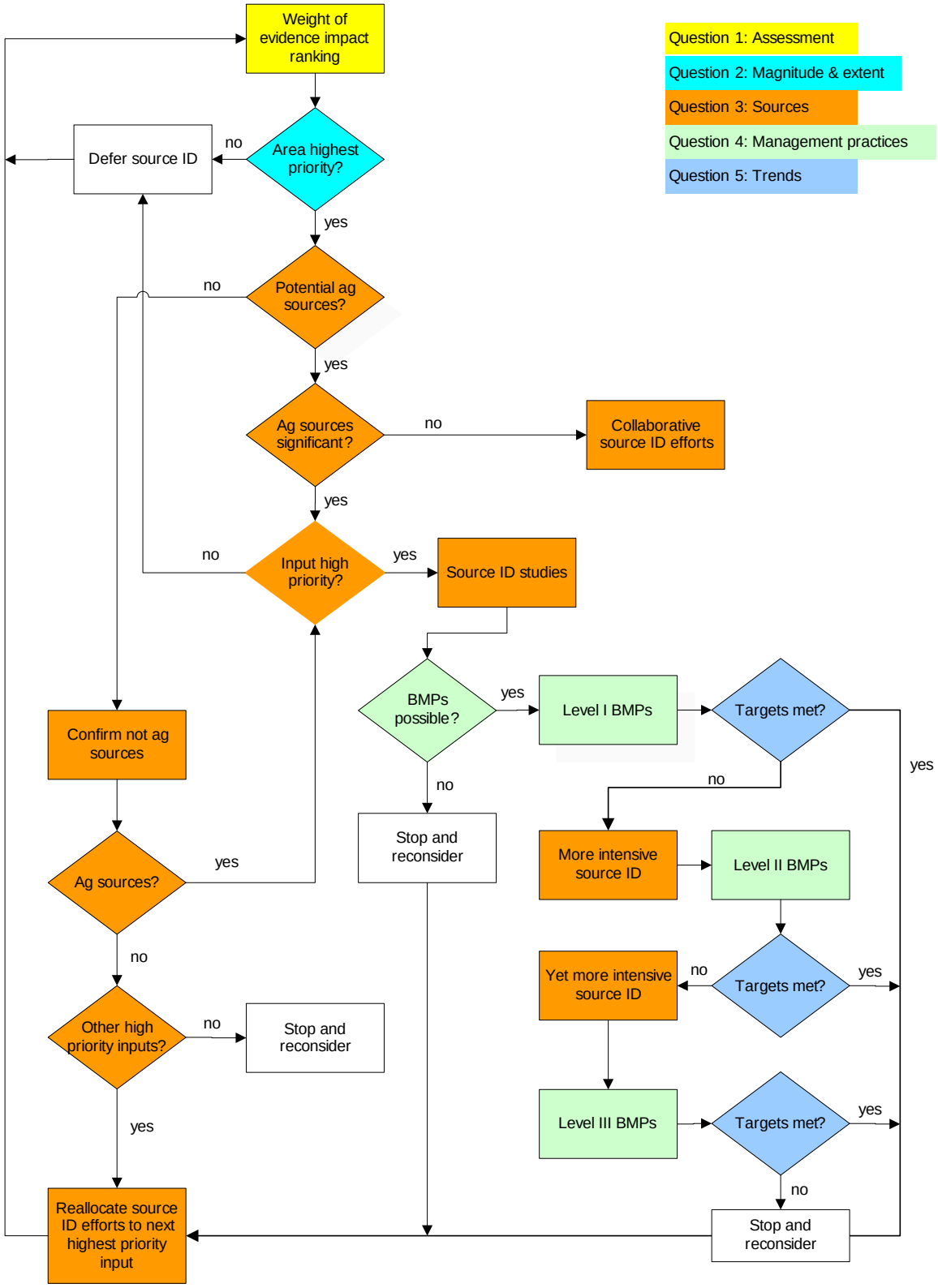
Regional Board member Dan Odenweller asked the TIC members to be more specific when using the phrase "the Board" and to be aware that "the Board" has not made any decision yet since nothing has been formally brought before the Board for its approval. TIC members should be more precise about whether they are referring to:

- Staff management
- Board members
- Staff technical experts

VI. Next Steps

(1) Regional Board staff will need to schedule a meeting with the Trigger Focus Group, in which some of the following items could be included as agenda items:
   - Assessment monitoring
   - How do you decide when your design monitoring is good enough for Assessment monitoring???
   - Define what an appropriate assessment monitoring design is (Dr. Bernstein volunteered to send an example document).

(2) Dr. Bernstein encourages the TIC members to make comments on today's meeting document in track changes and submit those comments to Susan Fregien or Margie Read.
(3) Dr. Bernstein will continue to develop and incorporate today's comments on the guidance documents.
(4) Regional Board staff will identify which elements will be placed on a guidance document instead of the main MRP.
(5) The Regional Board staff will identify the next TIC Meeting date and notify stakeholders and interested parties. The Regional Board will compile and distribute summary notes of today's TIC meeting.



Draft Figure 1. Flow diagram of monitoring and evaluation steps focused primarily on source identification efforts**.**